

CLAIMS:

1. A method of protecting an integrated circuit against damage due to excessive temperatures, the integrated circuit comprising two or more transistors, (208) the method comprising the steps of:
 - i) providing temperature measurement means (200) in or on each of said
5 transistors (208); and
 - ii) if the measured temperature in any of said transistors (208) exceeds a first predetermined threshold temperature, disabling at least one of said transistors (208) for a predetermined period of time;
the method being characterized in that the temperature measurement means (200) comprises
10 means for measuring current through a reverse biased diode (10) provided in respect of each of said transistors (208).
2. A method according to claim 1, wherein said transistors (208) are power
15 transistors.
3. A method according to claim 1 or claim 2, wherein said reverse biased diode
(10) is comprises a reverse biased pn junction in said integrated circuit.
4. A method according to any one of claims 1 to 3, including the step of
20 providing temperature measurement means (210) in respect of the small signal part of the integrated circuit, and if the measured temperature of said small signal part of the integrated circuit exceeds a second predetermined threshold temperature, disabling said transistors (208) for a predetermined period of time.
- 25 5. A method according to claim 4, wherein said temperature measurement means (210) provided in respect of said small signal part of the integrated circuit comprises means for measuring current through a reverse biased diode.

6. A method according to claim 4, wherein said first predetermined threshold temperature is greater than said second predetermined threshold temperature.

7. A method according to any one of claims 1 to 6, wherein said first and second
5 predetermined threshold temperatures are in the range 130° – 200°C.

8. A method according to any one of claims 1 to 7, wherein said predetermined period of time is in the range 2 to 5 ms, and the method includes the step of automatically enabling the transistors (208) when said predetermined period of time has elapsed.

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9. Apparatus for protecting an integrated circuit against damage due to excessive temperatures, the integrated circuit comprising two or more transistors (208), the apparatus comprising:

i) means (200) for measuring temperature in each of said transistors (208); and

15 ii) means (204,206) for disabling at least one of said transistors (208) for a predetermined period of time if the measured temperature in any of said transistors (208) exceeds a predetermined threshold temperature;

the apparatus being characterized in that the means (200) for measuring temperature comprises means for measuring current through a reverse biased diode (10) provided in

20 respect of each of said transistors (208).

10. Apparatus according to claim 9, including means (210) for measuring temperature in the small signal part of the integrated circuit.

25 11. Apparatus according to claim 10, wherein said means (210) for measuring temperature in the small signal part of the integrated circuit comprises means for measuring current through reverse biased diode.

12. Apparatus according to any one of claims 9 to 11, wherein said transistors
30 (208) are power transistors.

13. Apparatus according to any one of claims 9 to 12, comprising shut-off means (206) for disabling all of said transistors in the event that the temperature in any of said transistors is determined to exceed said predetermined threshold temperature.

14. Apparatus according to claim 13, comprising timer means (204) for causing said transistors (208) to be enabled when said predetermined period of time has elapsed.
- 5 15. Apparatus according to any one of claims 9 to 14, wherein said reverse biased diode (10) comprises a reverse biased pn junction provided in said integrated circuit.
- 10 16. An integrated circuit comprising a plurality of power transistors (208), and apparatus for protecting said integrated circuit against damage due to excessive temperatures according to any one of claims 9 to 15, said apparatus comprising means (200) for measuring temperature in each of said transistors (208) and a common shut-off (206) and timer means (204) for disabling all of said transistors (208) in the event that the temperature in any one of said transistors (208) is determined to exceed a predetermined threshold temperature and re-enabling said transistors when said predetermined period of time has elapsed.
- 15 17. An amplifier including an integrated circuit according to claim 16.
18. A method of manufacturing an integrated circuit comprising two or more transistors (208), the method including the steps of providing, in respect of each of said transistors (208), a reverse biased diode (10), means for monitoring current through each of said diodes (10) to determine the temperature of respective transistors (208), and providing means (204,206) for disabling, for a predetermined period of time, one or more of said transistors (208) in the event that the temperature of any of said transistors (208) is determined to exceed a predetermined threshold temperature.
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